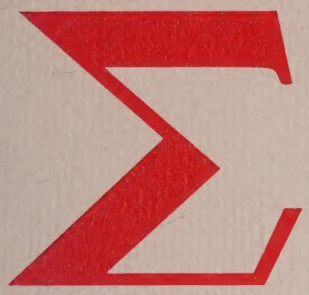


ENDEVCO
CORPORATION

INSTRUCTIONS FOR

MODELS SR200EP AND SR200EHP
VOLTAGE REGULATED POWER SUPPLIES

MODELS SR200EP AND SR200EHP

VOLTAGE REGULATED POWER SUPPLIES

ENDEVCO SALES OFFICES

If there are any questions concerning this unit, please be sure to contact the nearest Endevco Field Office or the Factory directly.

Eastern Region

Endevco Corporation
912 Bob Wallace Avenue, SW
Huntsville, Alabama
Area Code 205, Telephone 536-1051

Endevco Corporation
306 Busse Highway
Park Ridge, Illinois
TAlcott 5-4600

Endevco Corporation
P.O. Box 145
Greenbelt, Maryland
Telephone 474-3888

Endevco Corporation
440 Lexington Street
Auburndale 66, Massachusetts
WOodward 9-8063

Endevco Corporation
195 Nassau Street
Princeton, New Jersey
Area Code 609, WAlnut 4-3297

Endevco Corporation
611 West Market Street
Akron, Ohio
Telephone 253-3414

Western Offices and Main Plant

Endevco Corporation
29 Whitney Street
Los Altos, California
Telephone 948-1105

Endevco Corporation
801 South Arroyo Parkway
Pasadena, California
SYcamore 5-0271 TWX: 213-449-3551
Cable: ENDEVCO

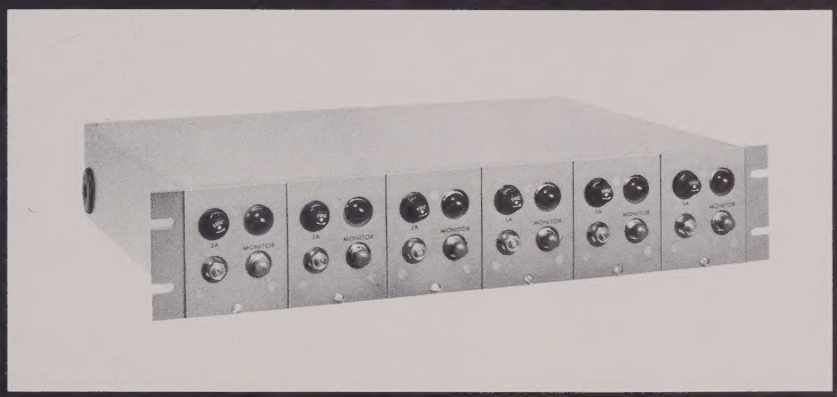
WARRANTY

Endevco Corporation warrants each new instrument to be free from defective material and workmanship for one year from date of sale to the original purchaser. This warranty does not extend to vacuum tubes, transistors and choppers in the units, nor to units which have been misused or used in violation of Endevco recommendations, or to units which have been altered or repaired outside Endevco's factory. Defects covered by this warranty will be remedied at no charge provided the instrument is delivered to the factory with all transportation charges prepaid. If upon examination it is found that the defect is not within the scope of this warranty, a statement of repair charges and a request for authorization to proceed will be submitted.

Revised December 1962

Several models of single channel power supplies are available from Endevco. A power supply intended for use as a source of transducer excitation voltage must exhibit certain characteristics in order to qualify for use as precision instrumentation. Careful design, supported by satisfactory performance of thousands of operating units has proven that the Endevco isolated power supply EXCELS in the qualities considered significant to high accuracy data systems.

ISOLATED BRIDGE EXCITATION SUPPLIES
VOLTAGE REGULATED
MODELS SR200EP, SR200EHP
SR200EM, SR200EHM



- FULLY FLOATING OUTPUT
- INSENSITIVE TO POWER LINE VARIATIONS
- HIGH RELIABILITY
- REMOTE SENSING
- ISOLATED FROM POWER LINE GROUND,
- RACK GROUND, ADJACENT CHANNELS.

Since the output signal from a transducer can be no better than the accuracy of the excitation voltage a stable source of excitation is necessary. Well-regulated output voltage is assured with Endevco power supplies through self-correcting regulators. The regulation circuit of each power supply contains precision reference voltages which are constantly compared (by a differential error amplifier) to the output to sense any corrections which may be required to stabilize the output voltage.

Unusually high isolation from the AC power line prevents circulating currents and permits "floating" operation of the power supply. Capacitive coupling to the AC line has been reduced to less than 0.02 picofarads in Models SR200EP, and SR200EHP. The specially-shielded power transformers necessary to obtain this degree of isolation are designed and manufactured by Endevco under strict conditions of quality control.

When used with the associated rack adapters (Model R13B or R13BC), the power supplies are also isolated from each other and the mounting rack. The case of each power supply forms a guard shield which encloses the unit to complete the total-isolation capabilities of the instrument.

Provisions are included in these power supplies for remote sensing of the error voltage to improve the regulation at the load. The actual sensing circuit may be extended to the load to compensate for changes in cable resistance or in the load itself.

A ten-turn potentiometer provides high resolution adjustment of the output voltage over the full range. Positive protection against overloads is assured by the presence of the easily accessible fuse.

For the ultimate in sophisticated power supplies, the Models SR200EP and SR200EHP provide significantly better performance in the areas of extremely low ripple and excellent regulation characteristics. The additional isolation of the Models SR200EP and SR200EHP insure that noise-to-ground across a 350 ohm bridge will be limited to the insignificant level of ONE MICROVOLT, PEAK-TO-PEAK!

Installed in standard cabinets, or used as a general purpose power supply in the laboratory, these dependable instruments will give years of minimum-maintenance service.

TWX: 7764 CABLE: ENDEVCO PRINTED IN U.S.A. MARCH 1963

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ENDEVCO CORPORATION

801 SO. ARROYO PARKWAY • PASADENA, CALIFORNIA • AREA CODE 213-795-0271

CHICAGO, ILL. • BOSTON, MASS. • BALTIMORE, MD. • PRINCETON, N.J. • HUNTSVILLE, ALA. • CLEVELAND, OHIO • LOS ALTOS, CALIF. • ENDEVCO LTD., ENGLAND
REPRESENTATIVES: AUSTRIA • AUSTRALIA • BELGIUM • CANADA • FRANCE • GERMANY • ITALY • INDIA • JAPAN • S. AFRICA • SWEDEN • SWITZERLAND

SPECIFICATIONS

ELECTRICAL

	MODEL SR200EM SR200EHM	MODEL SR200EP SR200EHP
VOLTAGE RANGE:	0-15 VDC (EM) 0-24 VDC (EHM)	0-15 VDC (EP) 0-24 VDC (EHP)
RIPPLE, MAXIMUM:	1 millivolt, rms	30 microvolts, rms
LINE REGULATION (95 to 135 volts):	0.1%	0.01%
LOAD REGULATION (No load to full load with sensing connected on load side of connector):	0.1%	0.01%
NOISE-TO-GROUND:	Less than 10 microvolts P-P	Less than 1 microvolt P-P

ALL MODELS

CURRENT RANGE: 0 to 200 ma.

OUTPUT IMPEDANCE: Less than 0.1 ohm.

TRANSIENT RESPONSE: Line voltage transients within the range of 95 to 135 volts will not cause any overshoot or ringing and the regulation tolerance will be maintained.

TEMPERATURE STABILITY: Better than 0.005% per degree F.

POWER REQUIREMENTS: 95 to 135 volts, 50 to 400 cps. (Noise specifications will deteriorate somewhat as frequency approaches 400 cps.)

PHYSICAL

DIMENSIONS: 3-7/16 high x 2-27/32 wide x 12-1/8 deep.

WEIGHT: 4¼ pounds.

MOUNTING: Up to 6 channels may be installed in a rack adapter designed for 19 inch cabinets. Adapter requires 3½ inches of panel space with a depth of 16½ inches.

ENVIRONMENTAL

Designed for fixed or portable installation.

AMBIENT TEMPERATURE RANGE: +40°F to +120°F.

ACCESSORIES

There are two types of rack adapters available for use with these power supplies.

R13B Rack Adapter is unwired except for AC power connections.

R13BC Rack Adapter has all output leads wired to a single "MS" type connector located on the rear panel.

Blank front panels are available and should be installed in all vacant positions to insure proper cooling airflow.

For bench use of individual units mating connectors equipped with locking hoods are also available.

PRICES

Model SR200EM	$ 98.00 each
Model SR200EHM	$118.00 each
Model SR200EP	$145.00 each
Model SR200EHP	$165.00 each
Hooded Connector	$ 9.00 each
Blank Panel (C3)	$ 7.50 each
R13B Rack Adapter	$ 75.00 each
R13BC Rack Adapter	$125.00 each

For less expensive power supplies offering many of these features request information on Model SR150.

Endevco Corporation reserves the right to modify these specifications and/or prices without notice.

ENDEVCO CORPORATION

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INSTRUCTION MANUAL FOR MODELS SR200EP AND SR200EHP VOLTAGE REGULATED POWER SUPPLIES

1.0 GENERAL

Power supplies used as transducer excitation voltage must satisfy a broad range of requirements. The single channel power supplies manufactured by Endevco Corporation have been designed specifically with instrumentation systems in mind and represent a well regulated, isolated type of power supply. This instruction manual describes the Models SR200EP and SR200EHP Power Supplies which differ only in output voltage range.

2.0 OPERATING INSTRUCTIONS

2.1 Controls

The output voltage is continuously variable over the entire range by means of the screwdriver adjustment located on the front panel.

The momentary contact switch ("Monitor") is used to monitor the output voltage. When operated, this switch applies the output voltage to the monitor terminals of the connector. These terminals may be connected to a precision voltmeter. The Endevco Model ENO-2 Meter Monitor Panel is available for this purpose.

2.2 Remote Sensing

Since the wires going to the load have a certain amount of resistance, the point where regulation occurs should properly be established at the load itself. A provision has been made to physically move the error sensing point from the unit to any point at which regulation is to be maintained. Pins 7 and 8 on the connector have been tied together internally, as have pins 15 and 16. These two jumpers can be removed, and the connection between pins 7 and 8, and pins 15 and 16, respectively, can be recreated at the point of measurement.

CAUTION: Care must be taken to connect pin 15 to pin 16 (positive) and pin 7 to pin 8 (negative). An error in connection would damage the unit.

801 SO. ARROYO PARKWAY • PASADENA, CALIFORNIA 91109 • AREA CODE 213 795-0271
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3.0 CIRCUIT DESCRIPTION

General

Regulation of the power supply is obtained by comparison of the output voltage with stable reference voltage through the use of a differential amplifier. Any difference voltage is amplified and resulting signal used to correct the output voltage.

3.1 Reference Voltage

The reference voltage is obtained through the use of a three-step Zener diode circuit. The first stage of reference regulation is composed of diode CR8 and transistor Q7. This circuit provides current to diode CR10 that is constant within 1% as the line voltage varies from 95 to 135 volts. The second step, diode CR10, provides a .1% regulated supply for CR11. This diode, which operates at a zero temperature coefficient condition in conjunction with R15, provides a .01% regulated reference voltage. Components CR10, CR11 and R15 constitute a match set and must be replaced as a group to insure proper operation. See Parts List for correct Endevco part number.

3.2 Error Correction

A matched pair of transistors, Q5 and Q6, comprise a differential amplifier. A portion of the output voltage is applied through a ten-turn helical potentiometer, R21, and compared with the reference voltage at the base of Q6. Any difference voltage is coupled from the collector of Q5 to a conventional amplifier, Q4. This amplified error signal is, in turn, applied to the base of an emitter follower, Q2. The output of Q2 is used to control the voltage out of the series regulator, Q1.

Due to the differential nature of correction, temperature changes in the comparison amplifier are applied equally to the reference signal and the output voltage, thus cancelling out the effects of temperature changes.

The collector voltage for small signal transistor Q2 is supplied by the low voltage winding of T1 in order to limit the power.

The collector voltage to the differential amplifier, Q5 and Q6, is regulated by Q3 and CR9.

High frequency response of the amplifier is limited by C6 to prevent oscillation.

4.0 INSTALLATION

4.1 Physical

The Model SR200EP and SR200EHP Power Supply may be installed in standard 19 inch cabinets using rack adapters Model R13B or R13BC to accept up to six channels per adapter. The use of Model C3 blank panels is recommended in all vacant positions to insure proper air flow around the instruments.

For bench top use the power supply may be equipped with a locking device for use with hooded mating connectors.

4.2 Electrical

Refer to the schematic section for connections to the wired rack adapter Model R13BC.

Connections to the power supply are listed in the following table:

Connector J-1, Amphenol 26-4100-16P
Mate, Amphenol 26-4200-16S

Pin Number	Circuit
1 and 9	115 VAC
3, 4, 6, 11, 12, and 14	Chassis ground
5	Monitor negative
7	External sensing negative
8	Output negative
13	Monitor positive
15	External sensing positive
16	Output positive

5.0 MAINTENANCE

5.1 Checkout Procedure

The following checkout techniques are used at Endevco Corporation and are recommended for your use. Instruments and equipment required are:

1 Oscilloscope
1 Volt-ohm-meter (Simpson 260 or equivalent)
1 Variac capable of varying AC input from 95 to 135 VAC
1 Stable reference source, such as Model SR200EP, SR200EHP, or mercury batteries
1 Precision DC voltmeter, capable of reading 0 to 2.5 millivolts with adequate short term stability (Model ENO-2 or equivalent)
1 Calibrated, very low noise amplifier

5.1.1 To Measure Ripple - Adjust the power supply output voltage to 15 or 24 volts. The output ripple as observed on the oscilloscope should be less than 30 microvolts rms at line voltages between 95 to 135 VAC.

Connect a 5 watt resistor across the output, of proper value to draw 200 ma (75 ohms for the Model SR200EP at 15 volts or 120 ohms for the Model SR200EHP at 24 volts). Repeat the above check. Ripple should be less than 30 microvolts rms.

5.1.2 To Measure Line Regulation - Connect the output of the power supply under test to a stable DC voltage source and precision voltmeter as shown in Figure 1. Vary the output to obtain a null (1 millivolt or less). Vary the line voltage from 95 to 135 VAC. The change in output voltage should be less than 0.01% of the output (1.5 millivolts for 15 volts output or 2.4 millivolts for 24 volts output).

5.1.3 To Measure Load Regulation - Under the conditions stated above, connect a 5 watt resistor across the output of proper value to draw 200 ma. The change in output voltage should again be less than 0.01% of the output. Interconnecting wires should be as short as possible since separate error sensing lead connections, with internal jumpers between pins 7-8 and 15-16 removed, are required. Resistance of the sensing leads must be less than 20 milliohms to maintain the .01% regulation.

CAUTION: Be sure to maintain correct polarity of the sensing leads. (Pin 15 to 16 and Pin 7 to 8)

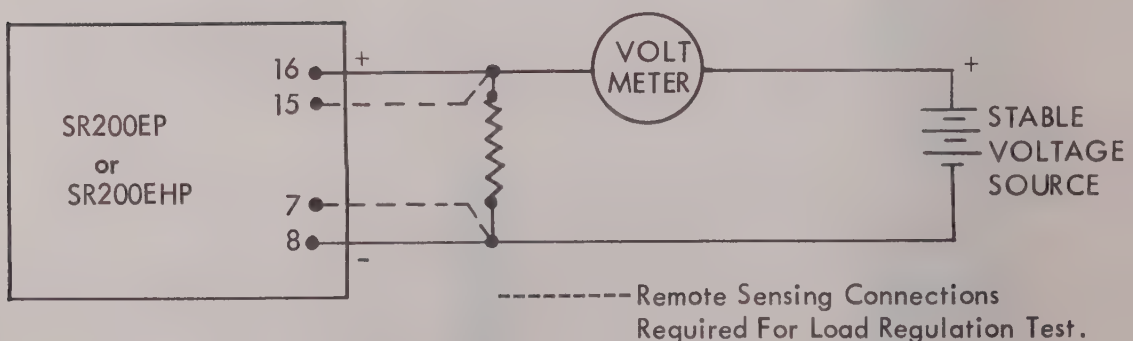


FIGURE 1

5.1.4 To Measure Noise - Due to the extremely low noise and hum generated by the Models SR200EP and SR200EHP, unusual care must be exercised in the selection of test equipment and interconnecting wires. This measurement must show actual power supply noise, giving due consideration to noise inherent in the test equipment. In view of the small signal to be measured, a calibrated, noise-free amplifier is required for an undistorted true measurement. If such an amplifier is not used, there may be a 60 cycle ripple present in the indicating equipment which will give an erroneous reading. A Tektronix Type 530 or 540 Oscilloscope with a Type 53/54E Preamp may be used. However, there may be 20 microvolts or more of ripple present in the preamp. All such noise contributions of test equipment must be subtracted from the readings.

Connect the output of the power supply to a shielded and balanced 350 ohm bridge as shown in Figure 2. The output of the amplifier is, in turn, connected to the oscilloscope. All leads must be carefully shielded, as well as the bridge. All chassis and shields are tied together as shown, and grounded at the input to the oscilloscope.

The noise contributed by the isolated supply will be the difference between the peak amplitudes of the oscilloscope display when the power supply is energized and when it is de-energized. With sufficient care, in eliminating external noise from the system, this noise will be found to be less than 1 microvolt peak-to-peak.

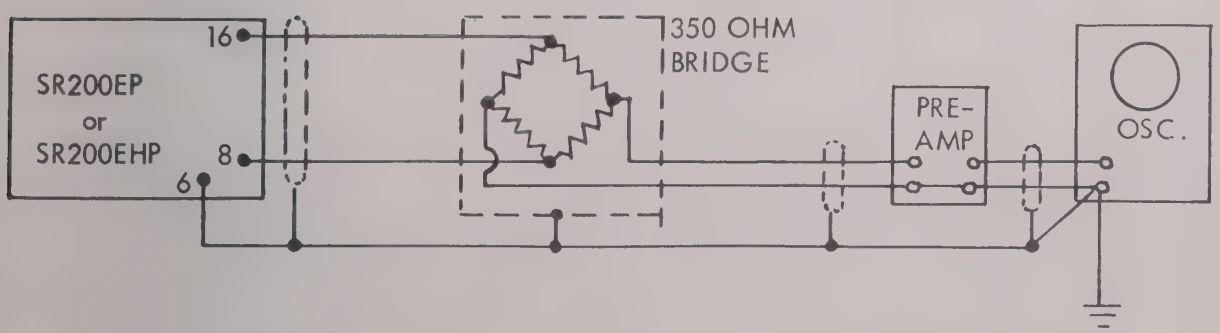


FIGURE 2

5.2 Maintenance Suggestions

Since the error amplifier is a DC coupled servo loop, failure of a component in any one stage will alter the voltages in all other stages, both succeeding and preceding the point of trouble. Voltage measurements on the transistors should be made with this in mind. The point of difficulty can best be localized by looking for a stage with contradictory operation; i.e., a transistor with the base back biased, and yet the transistor is not cut off as shown by a large voltage drop across the collector load resistor.

The regulating capabilities of the power supply are used to reduce the ripple in the output by a factor of approximately 1000. As a result of this, any malfunctioning in the power supply regulating circuitry will produce excessive ripple in the output.

5.3 Replacement of Components

Specially selected replacement components can be purchased from Endevco Corporation. Some of the components whose values must fall within certain prescribed limits, are selected for special circuit functions.

Such selected parts, as well as the parts manufactured by Endevco Corporation, are identified in the Parts List. Order these parts direct from Customer Services, Endevco Corporation, 801 South Arroyo Parkway, Pasadena, California 91109.

REPLACEABLE PARTS LIST FOR MODELS SR200EP AND SR200EHP

Cir. Des.	Part and Description	Manufacturer and Part Number	Endevco Part No.	SR200EP	SR200EHP
R1	Resistor, 150 ohm	Allen Bradley Type "EB"	ER308	X	-
	Resistor, 120 ohm	Allen Bradley Type "EB"	ER14	-	X
R2	Resistor, 220 ohm	Allen Bradley Type "EB"	ER191	X	X
R3	Resistor, 4.7 ohm	Allen Bradley Type "GB"	ER332	X	X
R4	Resistor, 470 ohm	Allen Bradley Type "EB"	ER506	X	-
	Resistor, 680 ohm	Allen Bradley Type "EB"	ER563	-	X
R5	Resistor, 3.9 K	Allen Bradley Type "GB"	ER331	X	X
R6	Resistor, 270, ±10%, 1/2 W	Allen Bradley	ER247	X	X
R7	Resistor, 470 ohm	Allen Bradley Type "EB"	ER506	X	-
	Resistor, 1 Kohm	Allen Bradley Type "EB"	ER434	-	X
R8	Resistor, 2.2 K	Allen Bradley Type "EB"	ER311	X	X
R9	Resistor, 3.3 K	Allen Bradley Type "EB"	ER315	X	X
R10	Resistor, 3.3 K	Allen Bradley Type "EB"	ER315	X	X
R11	Resistor, 85 ohm, ±3%	Dalohm RS-2B	ER663	X	X
R12	Resistor, 2.2 K	Allen Bradley Type "EB"	ER311	X	X
R13	Resistor, 100 M	Allen Bradley Type "EB"	ER305	X	X
R14	Resistor, 6.8 K	Allen Bradley Type "EB"	ER282	X	X
R15	Resistor	Endevco	*		
R16	Resistor, 220 ohm	Allen Bradley Type "EB"	ER191	X	X
R17	Resistor, 4.7 K	Allen Bradley Type "EB"	ER183	X	X
R18	Resistor, 3.3 K	Allen Bradley Type "EB"	ER315	X	X
R19	Resistor, 2.2 K	Allen Bradley Type "EB"	ER311	X	X
R20	Resistor, 270 ohm, ±1%, 3 W	Dalohm RS-2B	ER427	X	-
	Resistor, 350 ohm, ±1%, 3 W	Dalohm RS-2B	ER508	-	X
R21	Potentiometer, 1 K, WW	Voak Eng. Type AV	ER414	X	-
	Potentiometer, 2 K, WW	Voak Eng. Type AV	ER415	-	X
R22	Resistor, 100 ohm	Allen Bradley Type "EB"	ER302	X	X

Parts List (Continued)

Cir. Des.	Part and Description	Manufacturer and Part Number	Endevco Part No.	SR200EP	SR200EHP
C1	Capacitor, 175µf, 15V	Nashville Elec. 20-500-BP-175-15-S55	EC182	X	X
C2	Capacitor, 175µf, 15V	Nashville Elec. 20-500-BP-175-15-S55	EC182	X	X
C3	Capacitor, 250µf, 50V	Mica-Mold 929-764	EC148	X	X
C4	Capacitor, 250µf, 50V	Mica-Mold 929-764	EC148	X	X
C5	Capacitor, 250µf, 50V	Mica-Mold 929-764	EC148	X	X
C6	Capacitor, 2µf, 50V	Sprague 89D182	EC144	X	X
C7	Capacitor, 20µf, 25 V	Sprague 89D176	EC140	X	X
CR1	Diode	Mallory 1N2091	ECR67	X	X
CR2	Diode	Mallory 1N2091	ECR67	X	X
CR3	Diode	Mallory 1N2091	ECR67	X	-
	Diode	Mallory 1N2092	ECR48	-	X
CR4	Diode	Mallory 1N2091	ECR67	X	-
	Diode	Mallory 1N2092	ECR48	-	X
CR5	Diode	Mallory 1N2091	ECR67	X	-
	Diode	Mallory 1N2092	ECR48	-	X
CR6	Diode	Mallory 1N2091	ECR67	X	-
	Diode	Mallory 1N2092	ECR48	-	X
CR7	Diode	Endevco	ECR64	X	-
	Diode	Endevco	ECR83	-	X
CR8	Diode	Endevco	ECR83	X	X
CR9	Diode	I.R.C. 1Z8.2	ECR50	X	X
CR10	Diode	Endevco	*		
CR11	Diode	Endevco	*		
Q1	Transistor VI 106	Endevco	EQ27	X	-
	Transistor VI 103	Endevco	EQ26	-	X

Parts List (Continued)

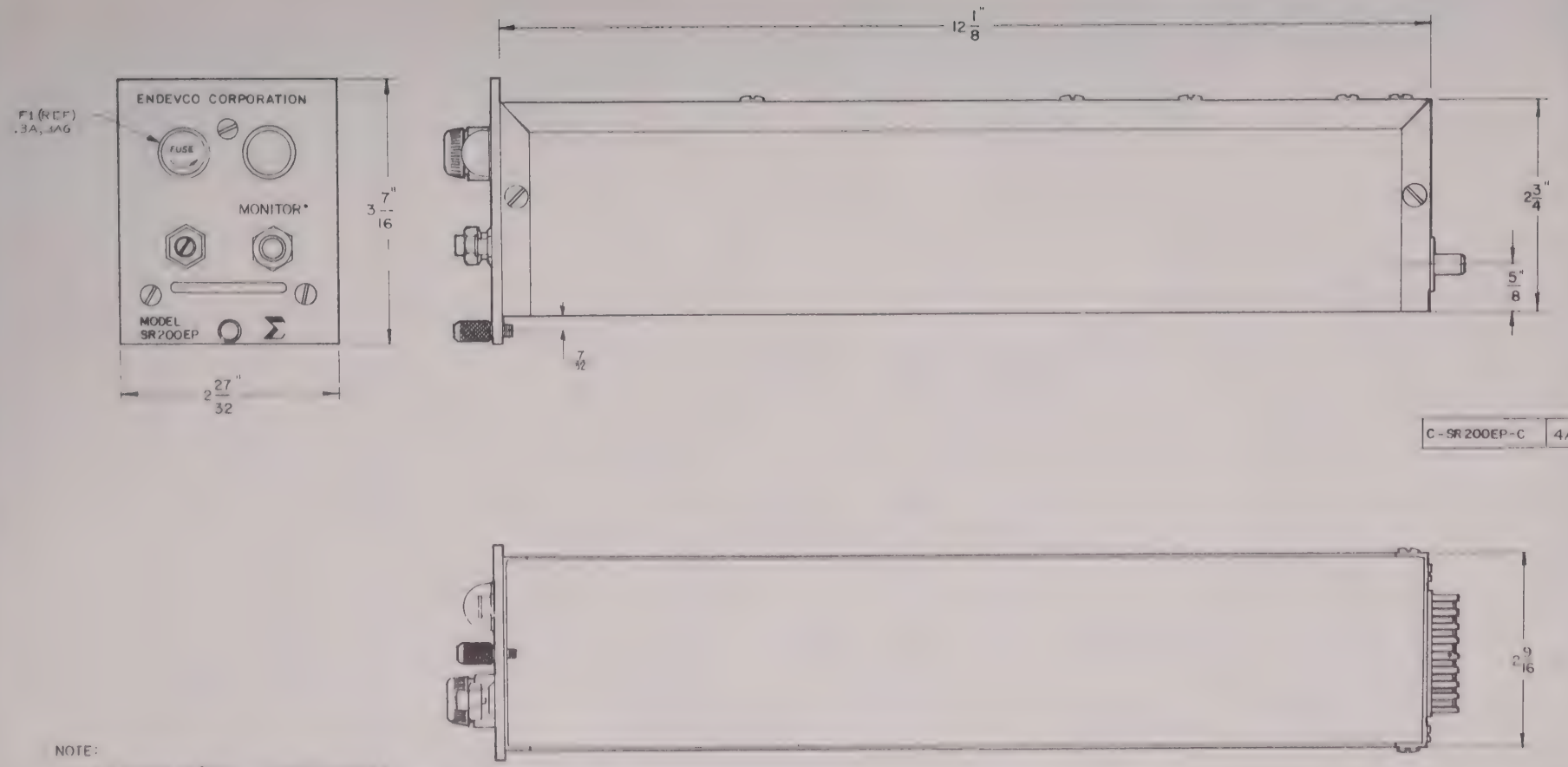
Cir. Des.	Part and Description	Manufacturer and Part Number	Endevco Part No.	SR200EP	SR200EHP
Q2	Transistor VI 102	Endevco	EQ45	X	X
Q3	Transistor VI 110	Endevco	EQ42	X	X
Q4	Transistor	RCA 3551A	EQ25	X	X
Q5	Transistor VI 101	Endevco	EQ43	X	X
Q6	Transistor VI 101	Endevco	EQ43	X	X
Q7	Transistor VI 106	Endevco	EQ27	X	X
DS1	Lamp	General Electric 1819	E17	X	X
F1	Fuse	Littelfuse 312.300	EF6	X	X
F2	Fuse	Littelfuse 313.250	EF5	X	X
S1	Switch	Switchcraft 3S-1356	ES33	X	X
T1	Transformer	Endevco	TS1021	X	-
	Transformer	Endevco	TS1023	-	X
	Front Panel Silk Screened (11466AW)	Endevco	11466	X	X
	Cover	Endevco	11467	X	X
J1	Connector	Amphenol 26-4100-16P	EJ77	X	X
	Mating Connector	Amphenol 26-4200-16S	EP115	X	X
	Mating Connector (Hooded)	Amphenol 26-4301-16S	EP116	X	X

*CR10, CR11 and R15 must be replaced as a matched set:
SR200EP matched set No. 11792-1
SR200EHP matched set No. 11792-2

BILL OF MATERIAL

PART NO.	DESCRIPTION	QUAN
SR200EP-1	POWER SUPPLY ASSY.	1
R138	RACK	OPT.
EJ79	CONNECTOR, AMPHENOL 26-4200-16S	4
EP116	CONNECTOR, AMPHENOL 26-4301-16S	4

CHG	P.O.		DATE	
3	1535	RELEASED FOR MOLDED PANEL CONFIGURATION. ADDED NOTE 3	5/15/63	
4	1801	CLARIFIED NOTE 2.	8/14/63	
4A	2110	F1 REF ADDED	11/26/63	



C-SR200EP-C | 4A

NOTE:

1. SIX MODEL SR200EP POWER SUPPLIES WILL FIT INSTRUMENT RACK NO. R13B R13BC OR R13B3
2. EJ79 (PANEL CONNECTOR) OR EP116 (HOODED CONNECTOR) WILL BE SUPPLIED AT ADDITIONAL COST, IF SPECIFIED ON ORDER.
3. THIS DWG. SUBJECT TO FUTURE CHANGE WITHOUT NOTICE.
4. UNIT WT. = 4 LBS 5 OZ.

ENDEVCO CORPORATION Pasadena, California

SPECIFICATIONS UNLESS OTHERWISE NOTED

LIMITS OF DIMS: ANGULAR ± —; FRACTIONAL ± 1/64; DECIMAL ± —

1. BREAK ALL SHARP CORNERS .005 MAX.
2. SURFACE FINISHED 63 MICROINCH RMS MAX.
3. DIAMETERS TO BE CONCENTRIC WITHIN .010 T.I.R.
4. FILLET RADIUS .010 MAX.

SCALE 1/1 — DO NOT SCALE DRAWING

MATERIAL: —

FINISH: —

DRAWN BY: [illegible] 5-1-63

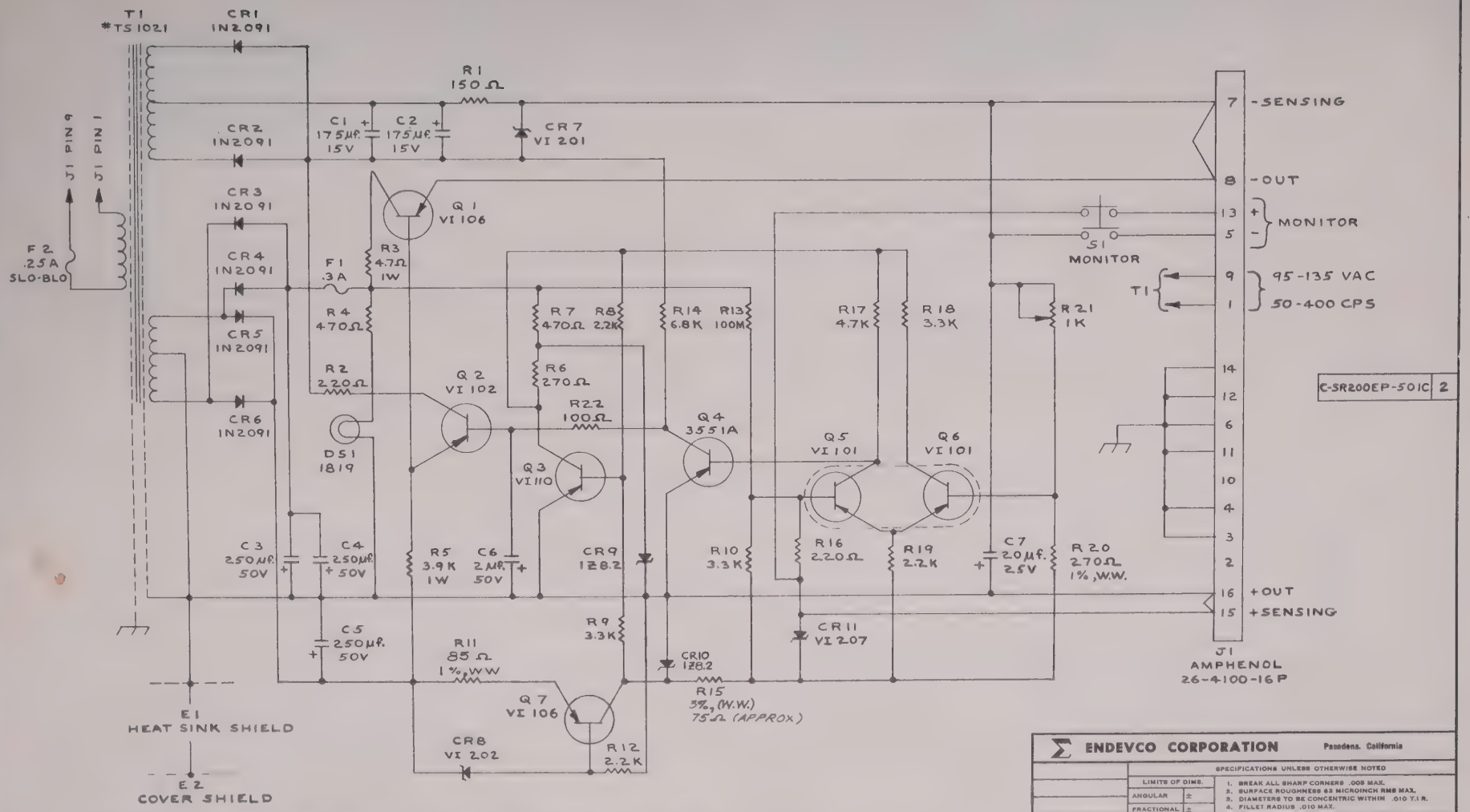
CHKD BY: [illegible]

PART NAME: POWER SUPPLY

SR200EP

C SR200EP C 4A

CHG	ECO#	CHANGE DESCRIPTION	BY / DATE	CHK	APP'R
1	899	REDRAWN & RERELEASED DWG. NO. WAS C10-1107. R22 WAS R28. R11 & R15 WERE 5%.	KW		
2	1555	R11 WAS 100Ω, 3%; ADDED NOTE 4	9/16/63		



NOTES: 1. ALL RESISTORS 1/2W, 10% UNLESS OTHERWISE SPECIFIED.
2. COMPONENTS AS GIVEN OR THEIR EQUIVALENTS.
3. R15 SELECTED FOR ZERO TEMPERATURE COEFFICIENT WITH CR10 & CR11
4. THIS DWG. SUBJECT TO FUTURE CHANGE WITHOUT NOTICE

ENDEVCO CORPORATION Pasadena, California

SPECIFICATIONS UNLESS OTHERWISE NOTED

LIMITS OF DIMS. 1. BREAK ALL SHARP CORNERS .005 MAX. 2. SURFACE ROUGHNESS 63 MICROINCH RMS MAX. 3. DIAMETERS TO BE CONCENTRIC WITHIN .010 T.I.R. 4. FILLET RADIUS .010 MAX.

ANGULAR ± | FRACTIONAL ± | DECIMAL ± | SCALE | DO NOT SCALE DRAWING

MATERIAL: | FINISH:

DRAWN BY: [illegible] 7-2-62 | CHKD BY | PROJ. ENG: DY WDB

SR 200 EP PRODUCT

PART NAME: SCHEMATIC DIAGRAM

C SR200EP -501C | CHG 2

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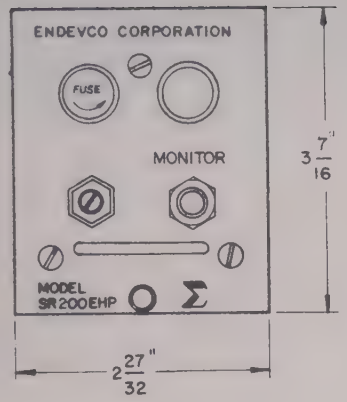
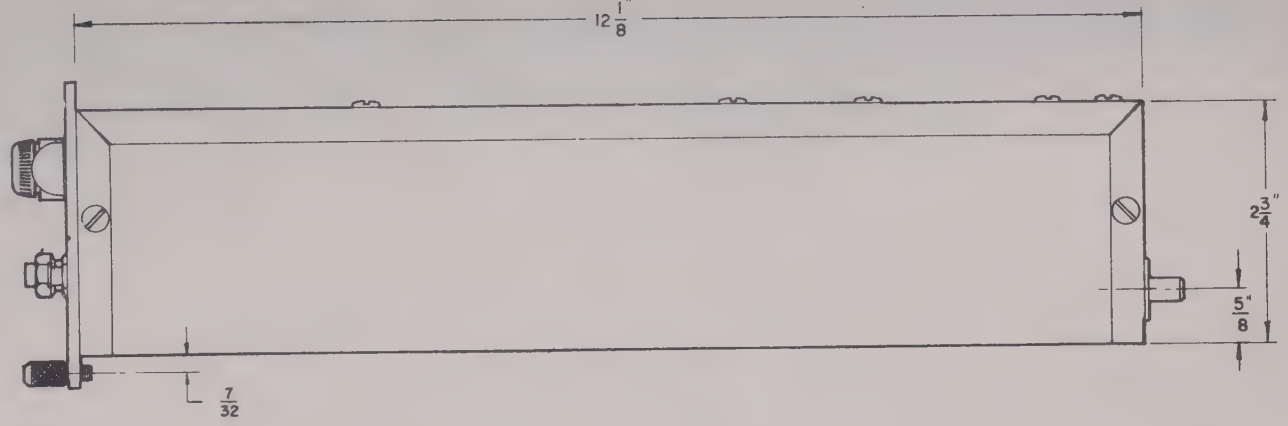
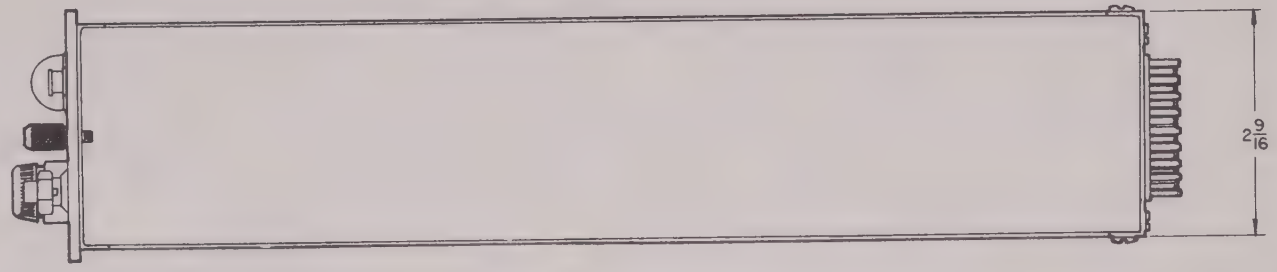
BILL OF MATERIAL

PART NO.	DESCRIPTION	QUAN.
SR200EHP-1	POWER SUPPLY ASSY	1
R13B	RACK	OPT.
EJ79	CONNECTOR, AMPHENOL 26-4200-16S	*
EP116	CONNECTOR, AMPHENOL 26-4301-16S	*

3	1555	RELEASED FOR MOLDED PANEL CONFIGURATION ADDED NOTE 5	
4	1801	CLARIFIED NOTE 2	







C-SR200EHP-C | 4

NOTE:

1. SIX MODEL SR200EHP POWER SUPPLIES WILL FIT INSTRUMENT RACK NO. R13B, R13BC OR R13B3
2. * EJ79 (PANEL CONNECTOR) OR EP116 (HOODED CONNECTOR) WILL BE SUPPLIED AT ADDITIONAL COST, IF SPECIFIED ON ORDER.
3. THIS DWG SUBJECT TO FUTURE CHANGE WITHOUT NOTICE.
4. UNIT WT. = 4 LBS 6 OZ

ENDEVCO CORPORATION Pasadena, California

SPECIFICATIONS UNLESS OTHERWISE NOTED

LIMITS OF DIMS: ANGULAR ±—, FRACTIONAL ±1/32, DECIMAL ±—

1. BREAK ALL SHARP CORNERS .005 MAX.
2. SURFACE ROUGHNESS 63 MICROINCH RMS MAX.
3. DIAMETERS TO BE CONCENTRIC WITHIN .010 T.I.R.
4. FILLET RADIUS .010 MAX

SCALE 1/1 | DO NOT SCALE DRAWING

MATERIAL: — | DRAWN BY WJTS 5-1-67

FINISH: — | CHKD BY [illegible]

PROJ. ENG [illegible]

PRODUCT	PART NAME		CHG
SR200EHP	POWER SUPPLY	C-SR200EHP-C	4

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DIETZGEN-POST CLEARPRINT 1000H-10

ISS	EO	CHANGE	DATE	CHK	APPR
2	1555	R11 WAS 100Ω, 3% ADDED NOTE 5	8/14/63	8/14	

ISS	EO	WAS	DATE	DWN	CHD	APP
A		REDRAWN FROM B10-1121 & REVISED	5-12-61	ET		
B		R19 WAS 5% WW & R28 ADDED	11-3-61	MYN		
1	997	DWG. NO. WAS C10-1121. R4 WAS V2W. R5 WAS 1W. R7 & R15 WERE 52 CR3, CR4, CR5, & CR6 WERE IN2091	5-7-62			

95-135 VAC 50-400 CPS
-SENSING
-OUT
MONITOR +
MONITOR -
+OUT
+SENSING

J1 AMPHENOL 26-4100-16P

T1 TS1023

CR1 IN2091
CR2 IN2091
CR3 IN2092
CR4 IN2092
CR5 IN2092
CR6 IN2092
CR7 VI 202
CR8 VI 202
CR9 1Z 8.2
CR10 1Z 8.2
CR11 VI 207

J1 PIN 9
J1 PIN 1

F2 .25A SLO-BLO
F1 .3A

R1 120Ω
R2 220Ω
R3 4.7Ω 1W
R4 680Ω 2W
R5 3.9K 3%WW
R6 270Ω
R7 1K 1%,WW
R8 2.2K
R9 3.3K
R10 3.3K
R11 85Ω 1%,WW
R12 2.2K
R13 100M
R14 6.8K
R15 75Ω (APPROX.) 1%,WW
R16 220Ω
R17 4.7K
R18 3.3K
R19 2.2K
R20 350Ω 1%,WW
R21 2K
R22 100Ω

C1 175UF 15V
C2 175UF 15V
C3 250UF 50V
C4 250UF 50V
C5 250UF 50V
C6 2UF 50V
C7 20UF 25V

Q1 VI 103
Q2 VI 102
Q3 VI 110
Q4 3551A
Q5 VI 101
Q6 VI 101
Q7 VI 106

DS1 1819

S1 MONITOR

E1 HEAT SINK SHIELD
E2 COVER SHIELD

C-SR200EHP-501C | 2

NOTES:
1. ALL RESISTORS ½W, 10% UNLESS OTHERWISE SPECIFIED
2. COMPONENTS AS GIVEN OR THEIR EQUIVALENTS.
3. R15 SELECTED FOR ZERO TEMPERATURE COEFFICIENT WITH CR10 & CR11.
4. CR10 MATCHED WITH CR11.
5. THIS DWG. SUBJECT TO FUTURE CHANGE *WITHOUT NOTICE*.

ENDEVCO CORPORATION Pasadena, California

SPECIFICATIONS UNLESS OTHERWISE NOTED

LIMITS OF DIMS.
1. BREAK ALL SHARP CORNERS .005 MAX.
2. SURFACE ROUGHNESS 63 MICROINCH RMS MAX.
3. DIAMETERS TO BE CONCENTRIC WITHIN .010 T.I.R.
4. FILLET RADIUS .010 MAX

ANGULAR ± —
FRACTIONAL ± —
DECIMAL + —
SCALE —
DO NOT SCALE DRAWING
MATERIAL —
FINISH —
DRAWN BY H.W.W.
CHKD BY A.S. 8-14-62
PROJ ENG C.M.

PRODUCT	PART NAME	CHG
SR200EHP	SCHEMATIC DIAGRAM	C-SR200EHP-501C 2

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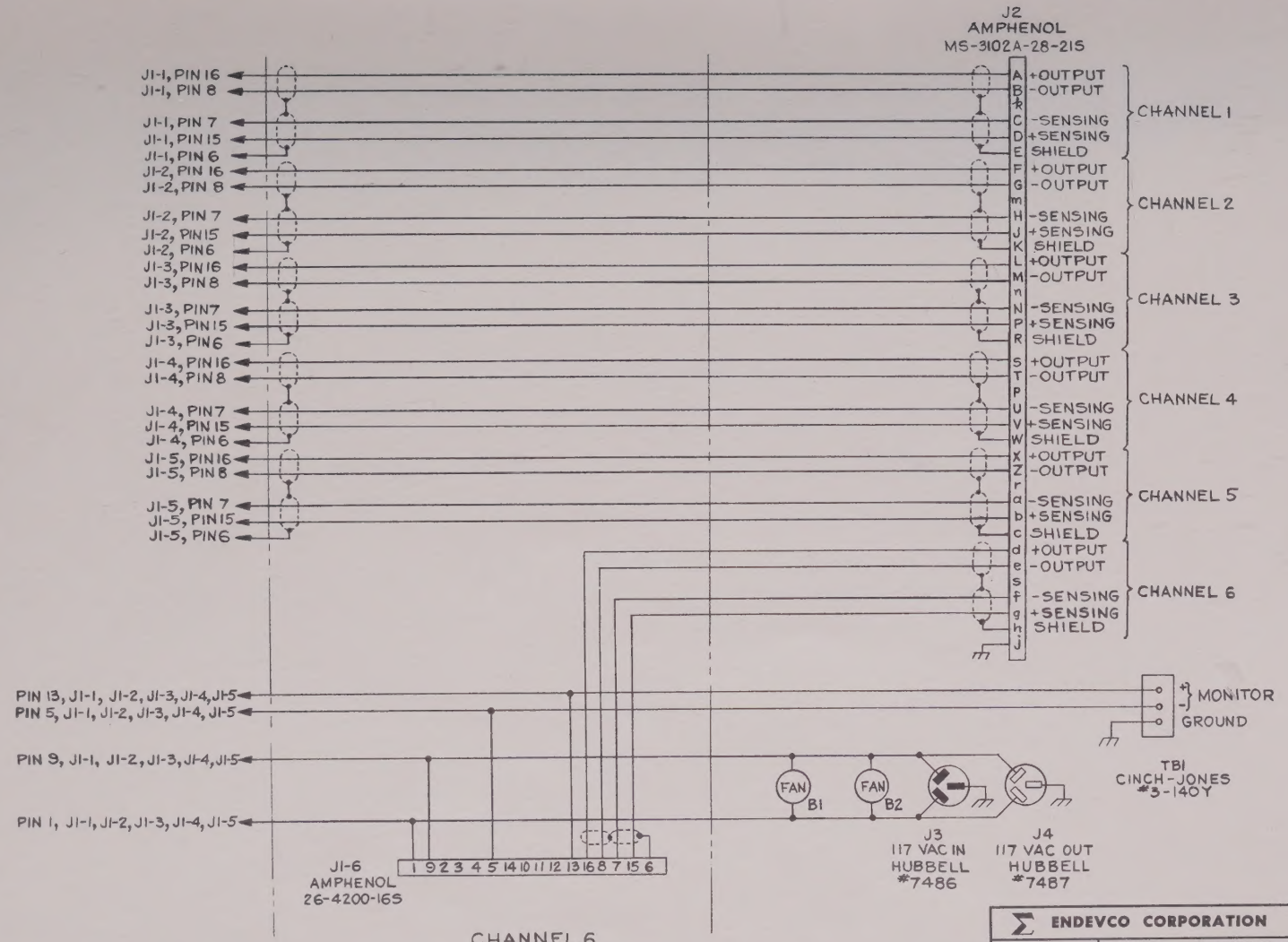
17283 PRINTED ON NO. 1000H CLEARPRINT

CHG	E.O.	CHANGE DESCRIPTION	BY DATE	CHK	APPR
1	1468	RELEASED, DWG.# WAS V1844 SENSING LEADS ADDED.	EET 2/14/63	JDS 2/14/63	OEM



C-R13BC-501C | CHG. 1

NOTES:
1. ONLY ONE OF SIX TYPICAL CIRCUITS SHOWN.

ENDEVCO CORPORATION Pasadena, California

SPECIFICATIONS UNLESS OTHERWISE NOTED

LIMITS OF DIMS. ANGULAR ± — FRACTIONAL ± — DECIMAL ± —

1. BREAK ALL SHARP CORNERS .005 MAX.
2. SURFACE ROUGHNESS 63 MICROINCH RMS MAX.
3. DIAMETERS TO BE CONCENTRIC WITHIN .010 T.I.R.
4. FILLET RADIUS .010 MAX.

SCALE: NONE — DO NOT SCALE DRAWING

MATERIAL: —

FINISH: —

DRAWN BY: EET

CHKD BY: JDS 2-26-63

PROJ. ENG: OEM 4-26

PART NAME: SCHEMATIC DIAGRAM

C-R13BC-501C | CHG 1

PRODUCT

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